

*Achieving Time and Big Money Savings at the Early Planning Stage*

## Advanced Modular Screwdriving Technology

*DEPRAG Presents the Latest Generation of Screwdriving Function Modules*

Screwdriving function modules form the basis of all automated, process-reliable screwdriving assembly operations. Visitors to the MOTEK 2011 trade exhibition in Stuttgart showed great enthusiasm for DEPRAG's new, thousandfold proven generation of screwdriver units. The pioneering modular structure of the SFMs shown, promises major benefits for system integration and plant engineers, offering advanced screwdriving technology at reasonable terms. Reliable timescale and cost data are known right from the planning stage.



With six standard structures, there are no restrictions covering the requirements of modern screwdriver assembly technology. The **normal** version with its slender appeal is designed to carry out horizontal screwdriving tasks, or operations from above. The **short** version is particularly suited for operations where space is restricted. The **under-floor** version is designed for vertical screwdriving tasks from below. The **vacuum** version handles tasks in hard-to-reach or recessed screw locations in any direction. The **pick and place** version is used to deal with fasteners that have a specified pick position. The **nut feed** version feeds and screws nuts onto the fastenings.

The SFM-L screwdriving function module is the light and compact single spindle version for low torques between 2 and 80 Ncm, and is suitable for screw head diameters up to 10 mm. The SFM-N screwdriving function module, also available in a single spindle design, executes screw fastenings at higher torque ranges from 0.06 to 20 Nm, as screw head diameters can range up to 14 mm. The robust SFM-S multi-spindle version is used to handle several screwdrivers along with high pressing forces. With this module, the torque range adjusts to the specific screwdriving task in hand. Screw heads can measure up to 14 mm in diameter. All three versions have a feed stroke of 25 mm or 80 mm as standard. Special stroke heights are available upon request.

The enormous variety of the new generation of DEPRAG screwdriving function modules continues in the wide range of stroke versions. Plant engineers can select from five different standard modules. If the screwdriving task calls for automatic screw feed with pick positioning, the SFM also has a pick stroke to receive the fasteners, in addition to the screwdriver stroke itself. In robot handling systems, if screws are automatically supplied via a feeder, and the robot completes the feed stroke, the screwdriver unit is equipped with a mouthpiece, a positioning sleeve, and a feed cylinder for the screwdriver stroke.

In stationary applications, where the screw is fed automatically through a feeder hose, the following stroke version is appropriate. It is here that the screwdriving function module is rigidly integrated into the plant. The mouthpiece and positioning sleeve need to be moved above the screw location. To this end the SFM is equipped with two feed cylinders, one to execute the mouthpiece stroke and the other to carry out the screwdriver stroke. When vertical screw fastenings are carried out from below, there is a major risk that screws already in the positioning sleeve can fall back down due to gravity. To carry out such screwdriving tasks, the DEPRAG screwdriving function module is equipped with special locking stroke technology which holds the screw in position for a reliable operation.

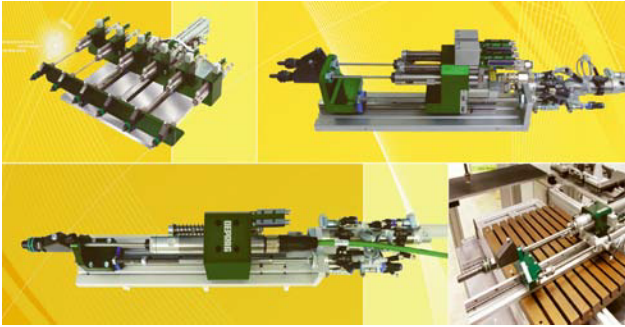
DEPRAG Sales Manager, Jürgen Hierold asserts, "The wide range of our standard modules provides an efficient solution for every screwdriving task. However, the wide standard range also means that special cases can be customized and implemented at reasonable cost." By means of this standardization and the modular construction of the new generation of screwdriving function modules, DEPRAG provides the antidote to inefficiency and cost pressures faced by modern plant engineers, as early as the planning stage. "Our standard modules for screwdriver units are brilliantly designed and easily managed. With them it is possible to achieve much shorter planning and delivery lead times."



DEPRAG SCHULZ GMBH u. CO., based in Bavaria, has demonstrated its expertise in screwdriving technology for forty years. Sales Manager, Jürgen Hierold explains, "The expertise derived from four decades of development work in the field of screwdriving technology is reflected in the new generation of our screwdriving function modules." Their compact and robust structure and straightforward interfaces ensure that the screwdriver units can be easily incorporated into any assembly system. The DEPRAG screwdriver module is adapted into the machine as a functional component and then comprehensively trialled, using the original components intended for the specific manufacturing task. The actual engineering costs involved are reduced to a minimum.

DEPRAG features, which have been tried and tested in the past, continue to be included in the standardized generation of screwdriving function modules. Jürgen Hierold stated, "Our development engineers constantly aim at minimizing maintenance and servicing costs." All our screwdriver units are constructed in such a way that they can be operated with standard bits and sockets, which is a notable reduction in add-on costs. If the screwdriver needs to be removed for calibration or maintenance, all that needs to be done is to loosen a nut on the screwdriving function module, and it can be replaced in a moment. "A further classic benefit is that it is possible to control the pressing force during the screwdriving operation," explains Jürgen Hierold. "The correct pressure is controlled by spring tension and can be variably adjusted."

If the functional module is fitted with DEPRAG screwdriver fittings, there are even more benefits. When combined with a DEPRAG EC screwdriver system, all kinds of options for seamless process data recording are available. It opens the way to a production facility that takes into account every element of process-reliable screwdriving assembly which includes safety-critical screw fastenings. Plant engineers who also opt for a DEPRAG screw feeder system will obtain a fully functionally tested screwdriver unit to fit into any manufacturing plant.



The screwdriving function module itself can also be equipped with optional added functions. The screw depth control, digital or analogue, checks the screwed assembly and ascertains whether the screw fastening has been carried out properly. This provides a high degree of process reliability for each step of production.

As an expert plant constructor, DEPRAG knows what is involved in an assembly plant early in the planning stage. System integrators and

plant engineers opt for well-designed system tools that can be incorporated into the engineering design with high functionality, while saving time and money. The DEPRAG screwdriving function module website also contains an easy-to-use request form which can be used to make contact with an applications advisor quickly and easily.

DEPRAG SCHULZ GMBH u. CO. has its headquarters in Amberg, Bavaria. 40 years of experience of screwdriving technology ensures that DEPRAG is an expert partner for every screwdriving assembly task. Some 600 employees in more than 50 countries successfully dedicate themselves to the optimization of screwdriving technology and processes. DEPRAG also has expertise in the fields of feeder and measurement technology, as well as in the manufacturing of high-quality air motors and pneumatic tools. DEPRAG, the full service provider, has made an excellent name for itself throughout the world as a plant constructor of semi- and fully-automated assembly systems.

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